PRINCIPES

Journal of The Palm Society

Photo by Dent Smith

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THE PALM SOCIETY

A non-profit voluntary association primarily engaged in the study of the palm family in all its aspects throughout the world.

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COVER PICTURE: *Jubaea spectabilis*—a specimen growing in the limerock soil at the Fairchild Tropical Garden, Coconut Grove, Fla. This Chilean native is the southernmost palm of the Western Hemisphere, and hence is markedly hardy. It is much planted in southern California, but is extremely scarce in Florida. The pictured specimen fruits annually, though still a midget in comparison with the massive old specimens growing in the better soils of California (see pp. 56-57).

As we go to press (November 20, 1956) the Society had 221 members in the continental United States and in 21 other lands or territories. Though there must be some limit to the Society's growth, there is no indication now that any slowing down in the present rate of increase will take place soon. Perhaps the saturation point will be one thousand members, but who can tell?

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This issue of PRINCIPES contains 40 pages and 30 photographic illustrations. Papers for publication, and photographs too, were received in a quantity greater than we could include in this issue, with the result that we now have on hand about half of the requirements for text and photographs for the April number.

Thanks are due and cordially given to the members who have responded so well with articles and photographs for publication.

Matter suitable for this journal will be printed in the order in which it is received. Our deadline with the printer for the April number will be February 15th. Papers intended for publication in that number should be submitted before that date, and preferably much sooner. Last-minute receipt makes it difficult to meet the deadline and impossible to plan ahead in a satisfactory way.

* * *

We had thought that 500 copies of the first issue of PRINCIPES would satisfy any conceivable demand for some time to come, and accordingly that number was printed. Already, however, we are about to run short, and it appears that the supply will have become completely exhausted by January 1st. Any members wishing to preserve a complete file of our journal should carefully guard copies of that first issue, for apparently they will be irreplaceable.

What has become of the 500 copies? Well, 50 were sent to the United Fruit Company at its request, 221 have been mailed to members, 11 have gone to fill miscellaneous requests, 15 have been used as samples in connection with work to

be done, 120 have been sent to prospective members, 30 have been reserved for binding, later on, into indexed volumes; which leaves only 53 copies for mailing, as long as they last, to new and prospective members.

The print order for this number of PRINCIPES will be increased to 700 copies. Even this quantity may shortly prove to be inadequate; but with our limited resources we have to draw the line at what seems a reasonable figure.

* * *

Reprints of articles appearing in PRINCIPES cannot be supplied under our present arrangements for printing. Any member, however, may obtain as many copies of the journal as he may wish, at actual cost, by notifying the editor before an issue goes to press. The cost would be moderate, for we would simply add to our print order the number of additional copies requested.

* * *

In this issue some of our illustrations are quite good and others, from the standpoint of photography, are poor—nay, they're punk. Any editor would choose, if he could, to print only sharp pictures that do full justice to their subjects. But it is not always possible to choose; we must use what is available, and lacking as some of our illustrations may be, they still tell a story; they convey, for example, the size of a palm, or failing that, they furnish at least a clue to its proportions.

The photographer who has arrived at technical proficiency may wonder why we should bother to use a poor illustration in any event. The answer is that, in some cases, it would be preferable to print a poor picture than none at all; moreover, there would be much more point, for us, in a poor picture of a palm than in a prize-winning picture of a walrus. Walruses, besides, may be easier to photograph, if they are nice, well-behaved walruses, than palms. With the latter, foliage of other plants often obstructs the view; often the photographer has to move out of good range to get all of some huge palm into his lens; or still more often he cannot move far enough away because of intervening walls, buildings, poles, brush or woodland. So we can leave the walruses to our zoological friends and stick to the palms with such pictures as we can get.

We are in pretty much the position of the city slicker from Los Angeles who arrived desperately thirsty and parched at a desert water hole guarded by a lone prospector, and despite his thirst made a fearful grimace at the water garnished o'er with green scum. "No use making faces at the water," opined the prospector. "Drink it—it's all we got."

* * *

The next number of PRINCIPES will contain an article by A. C. Jordahn on the cultivation of palms in the limerock areas of southern Florida. Mr. Jordahn pioneered the plantings at the Coconut Grove Palmetum and at the Fairchild Tropical Garden. Lawrence M. Simonson will recount some of his experiences in growing palms in both Polk and Broward Counties, Florida. Dr. Simonson, now 80, has been an enthusiastic plantsman for many years. David Barry, Jr., Los Angeles, will have a commentary on the pollination of Chamaedorea palms. Mr. Barry has a fine collection of the species of that genus. Continuing the series of accounts of palm collections, there will be a description of Dent Smith's plantings at Daytona Beach—of interest, perhaps, because of the large number of Torrid Zone palms growing far beyond the northern limits prescribed for their cultivation. We shall have something about the mushroom root rot (*Clitocybe tabescens*), including an illustration of the fruiting bodies on the trunk of a Butia palm. We hope to have something on the palms growing in Oregon; they should qualify as the northernmost in the U. S. —no mean distinction. We shall reproduce a few photographs by Stanley Kiem, taken in Jamaica, Haiti and the Dominican Republic last summer. Mr. Kiem, on his excursions, somehow manages to get some pictures even when collecting seeds and plants with both hands—he's quadridexterous. There will be other articles and other illustrations too.

Palms – Princes of the Plant World

Walter Hendricks Hodge

Reprinted from the November, 1949 issue of NATURAL HISTORY, *by kind permission of the publisher and of the author.*

To most of us, palm trees and the tropics are synonymous, and why not, for this amazing assemblage of nearly 3000 species of plants glories in torrid climates and populates most heavily the wet equatorial regions of the world. Actually tropical America is the real paradise for palms, although tropical Asia is also an important center. Brazil, with her endless square miles of wet Amazon country, probably can boast of more kinds of palms—some 500 species—than any other country, though Colombia, too, has an abundant palm flora. Yet there probably still exist hundreds of unknown species in these two countries alone.

So rich is the heritage of our Western Hemisphere in these wonderful plants that a certain group, the palmettos, even wander as far north as the Carolinas, while another group, the honey palms, reach as far south as Chile. In between these, another group, the South American wax palms, instead of moving south or north, climb the vertical slopes of the northern Andes not only past the usual upper limits of palms at 4000 feet, not only past the 11,000-foot timber line, but actually to the unbelievable altitude of 13,450 feet, on the Colombian-Ecuadorian frontier. The remarkable thing is that these wax palms are also the world's tallest palms, often attaining a trunk length of 200 feet, a height that begins to approach that of the lofty California redwoods and Australian eucalypti.

Palms are unique among trees, for of the monocots—that great group with parallel-veined leaves, which includes such plants as orchids and grasses, lilies, iris, and cannas—only the family of the palms has evolved the arboreal type of growth to any substantial degree. Actually palms are not true trees. Except for a superficial resemblance, their trunks are quite unlike those of our common trees, which sport the familiar hard central core of wood which increases in diameter annually and is surrounded by a fairly soft ring of bark. Palms lack a growing layer and scarcely increase the diameter of their trunks, which have a soft spongy heart surrounded by a hard ring of strong fibers. Often this outer layer is so tough as to repel the blows of all but the keenest ax. For this reason many a settler clearing a tropical forest spares the palms, for they dull his ax too quickly, and after all, they add beauty to a jungle garden plot.

And for the same reason the fibrous trunks of certain tougher-than-ordinary palms find many constructional uses in hot climes. In the Amazonian settler's shack split palm trunks take the place of oak flooring, for they resist termite attack and are more lasting than any other material. Trunks of the palm called Chonta (*Guilielma*) are filled with some of the toughest yet flexible black fibers known. For this reason the species is much in demand and is even semicultivated by lowland Indians of South America for the construction of bows, spears, daggers, blowguns, and blowgun darts. The wood of this abundant and easily grown palm is awaiting an enterprising sporting goods manufacturer who is looking for a flexible yet strong wood for such articles as fine fishing rods and the like.

With but few species growing in temperate latitudes, it is small wonder that palms are strangers to most civilized peoples, who grow up rather with oak trees, pines, or maples. The potted infant palms in our florist shops give little idea of the majesty of the mature trees. It is only after a trip to the sunny southland that the winter visitor can really appreciate the palm's stately beauty. And who does not gasp at his first glimpse of savannas peppered with stubby palmettos.

Photo by W. H. Hodge

Climbing the Cuban royal palm for the cabbage bud and for leaves for thatch. Of all the royal palms, the Cuban is the most beautiful.

of seacoasts girt with wind-combed coconuts, or busy city streets colonnaded with the slaty shafts of royal palms!

Scarcely a dozen of the several hundred species of palms grown in the warmer parts of the United States are natives, and of these the majority reside in subtropical Florida. Most of the palms that rattle their leaves along the parkways, that enhance our southern homes, or skirt our subtropical sea beaches are immigrant exotics; yet in their native homelands they claim a vast range of habitats. Depending upon the species, they revel in bright sun or dense shade, in swampland or desert prairie, seacoast, or mountain.

If Mr. Average Man is unfamiliar with palms in nature, he is just as unfamiliar with their many economic products. To him coconuts and dates are everyday novelties of the corner fruit store or ingredients of a favorite cake or pudding. But little does he realize that in their countries of origin certain palms constitute the very staff of life of the people. In the realm of economically important plants, palms stand second only to the grain-yielding grasses.

Thus throughout the Pacific isles the coconut (*Cocos nucifera*) is king—indeed, with over 1000 uses, it is one of the world's most important trees. In its island habitat the coconut is always found close to the sea. Conditions there are best for its development, and it flourishes in greatest luxuriance a few feet above high water mark. Under cultivation, it can be found at great distances inland, even at an altitude of 2000 feet, but in such places nut production falls. The results are similar when the species wanders into the subtropics. Hawaii's coconut palms of precivilized times yielded such poor crops that the fruit was a luxury for the privileged males. Woe betide the woman who dared touch it.

Humans have greatly increased the territorial domain of this palm. It has become so closely linked to agriculture that, like many another long-cultivated and protected plant, it has lost whatever aggressiveness it ever possessed and succumbs easily to any choking undergrowth. How real this plant-man partnership has become is reflected in a Cingalese proverb, which avers that "the coconut will not grow out of the sound of the sea or the human voice; nor will it thrive unless you walk and talk amongst the trees."

For such care, the coconut gives bountifully. The ripe meat and its many uses are too well known to list, yet in the Pacific isles the fruit is not used so much by people as by livestock. All domestic animals get their coconut meat rations. Guam natives use this natural food to fatten up a delicacy, the abundant land crab. If fresh coconut meats serve only the livestock, the milk serves only the people and is, on many a tropic isle, the only beverage of the natives.

The coconut can boast the original sealed milk bottle, for what container could have been more convenient or durable on a long sea trip than nature's own tough coconut bottle? Pacific islanders have for years kept their boats stocked with this sealed water supply for emergencies. And perhaps the Spaniards, on their early sailing trips from the Philippines to Mexico, copied this Polynesian habit, thus introducing the coconut to the western shores of the New World.

Bligh's memorable voyage in the "Bounty's" lifeboat might not have been successful without the nourishment provided by the nut. In his journal one can find such descriptive entries as: "May 6, 1789: our allowance for the day was a quarter of a pint of coconut milk, and the meat, which did not exceed two ounces to each person: it was received very contentedly . . . ; May 9, 1789: in the morning a quarter of a pint of coconut milk . . . ; and for dinner, I divided the meat of four coconuts with the remainder of the rotten bread."

The coconut attains its greatest marketable value as copra. Indeed in Polynesia this palm product is the only export of commercial value. Nuts to be used in the copra trade are allowed to mature on the tree. When they fall, the meat is pried out and allowed to dry in the sun on

mats or platforms. The copra finds its way to the world's manufacturing centers to be converted into a large series of fatty products. The United States normally uses 20,000,000 pounds annually.

Natural oil, to the tune of 50 per cent of volume, has elevated copra to a station where the crop can practically never be overproduced. Butter-starved postwar Europe craves copra by-products for conversion into butter substitutes, while America uses them for soaps and oleomargarines.

Use of soap and oil obtained from copra originated in the Pacific islands, where for centuries the natives have anointed their bodies and hair with Macassar oil. Mixed with sandalwood, the same oil imparts fragrance to the hair of island beauties—apparently the fragrance that inspired one writer to remark: "Among the islands of the Pacific the smell of rancid coconut oil always brings to mind visions of brown-skinned natives and thatched roofed huts nestling beneath groves of coconut palms."

Milk, copra and the tough, elastic fibers known as coir all come solely from the coconut fruit. If any other plant offered this variety of economic usables, we would call it important; but the coconut palm doesn't stop with these mere fruit derivatives. It offers as further proof of its usefulness additional products made from every conceivable portion of its vegetable body.

The single terminal bud makes an excellent salad. The beverage toddy is fermented by the Pacific natives from sap tapped from young flower spathes. Leaves, besides being the chief roofing thatch, are also woven into hats, baskets, and mats, or are made into brooms or torches. Imported "porcupine wood" is hard and handsome, excellent for cabinet work and veneers; in its homeland it is part of a coconut trunk.

What a tree is this palm! Picture just one day in the life of a Polynesian: a morning coconut oil massage; rations of coconut mash for the domestic animals; a full-course dinner with coconut milk entree, coconut-fattened crabs in a salad with fresh coconut buds, served on platters fashioned from coconut shell, followed by a dessert of coconut pudding. After dinner comes conversation in the flicker of coconut oil lamps, which illuminate the faces of a household reclining on coconut mats in their shelter fashioned from coconut wood and thatched with coconut leaves. Outside, serenely nodding over all, what should one find? Why, of course, a coconut palm!

Dates are to the Arab equally essential, and on the size of the harvest from the date palm may depend the wealth if not the very existence of many a desert tribe. But each tropical region can boast of its own palm favorite. In northern South America it is the *pejibaye*, or peach palm, with an edible fatty fruit. In Malaya there is a palm triumvirate, which includes the palmyra with over 800 uses, the starch-producing sago palm, and the much chewed betel-nut palm. In Cuba the superbly beautiful *palma real* (royal palm) is protected by law, for the peasants derive from it a home, the simple native *bohio*, hewn from its timber and thatched with its leaves, while they are occasionally fed by its bud.

Little do we realize the part palms play in each one of our own daily lives. Brazil helps to keep our streets clean by sending us the coarse bristles from the leaf stalks of the piassaba palm for the brooms of our cities' "white wing" departments. From the island of Madagascar comes raffia, the soft, dried leaf tissue of a palm that is important for its use in basketry. From the strong flexible stems of certain high-climbing palms of faraway Malaya is derived rattan, woven into baskets, furniture, or the cane seat of the chair you may be using at this moment. Add the palm oil in Palmolive soap, which comes from the crushed nuts of the west African oil palm; the shredded coconut in your wife's layer cake; and the fat in oleomargarine with its copra origin. The powdery protective wax that covers the leaves of Brazil's carnauba palm gives strength to your favor-

Photo by W. H. Hodge

Its crisp, tender terminal buds make the cabbage palm (*Euterpe*) sought after wherever it grows. A view on the slopes of the central Andes of Antioquia, in Colombia.

ite phonograph record and imparts a high protective polish to your waxed floors and automobile. The buttons on your new dress are of vegetable ivory, machine-cut from the tough seed of Ecuador's ivory nut, or *tagua* palm. And the resinous substance called "dragon's blood," obtained from a Sumatran rattan palm, is a constituent of the very finest varnishes. Why, we can't get away from palms!

Although the commercial fibers and waxes obtained from the leaves of various palms are of greatest value to us, the most important single function of palm leaves throughout the whole great range of their growth is as thatch. Palm leaves become the shingles of practically all primitive tropical homes. This is due to their universal availability and general imperviousness to water. On numerous instances, while on a tropical trip of plant exploration, my native guides have whipped up an overnight shelter in five minutes merely by cutting down an ever-present palm and properly arranging the cut-off leaves over a thatching pole. Even in the heaviest tropical downpour, one can be snug and dry under such a crude palm-leaf shelter. More permanent tropical dwellings are more carefully thatched, the roofs being woven together with all the care and technique used in making a finely woven basket. Such native thatching will shed water for years and is cool, in addition. Even the white man accepts this as the best in tropical roofing.

Besides keeping one dry, young palm leaves are an excellent emergency food everywhere in the moist tropics. The edible portion is the palm bud, or so-called "cabbage." Like a cabbage—though a cylindrical one—it is made of tightly packed young leaves that are tender, crisp, and white. The innermost ones are naturally the choicest, having the flavor of cabbage—hence the name. They may be eaten either raw or cooked. Certain palms, especially the so-called cabbage palms (*Euterpe*), have particularly delicate buds, but almost any palm bud may be eaten. To taste palm cabbage, just fell any palm tree; the plant will be killed, but in a food emergency anything goes.

Despite their long association with man, palms are perhaps less completely known than any other group of flowering plants. This is partly due to the very local occurrence of certain species. Many a tiny island or an isolated mountain valley boasts of a native palm unknown elsewhere. But the chief reason why we do not know them better is that most palms are so tall that botanical study is rendered difficult. To classify new plants, the great botanical museums of the world must acquire pressed specimens of each species for study and permanent reference. Most plants in one way or another can be fitted into an herbarium case on a standard size (11x16-inch) paper mount. But not Palms. Think of yourself as an exploring botanist charged with pressing ample material of, say, a talipot palm, whose leaves may be 25 feet long, to say nothing of the gigantic flowering branches. You would probably just forget it, and that is what many a field collector has done. This has resulted in a number of strange situations, and many of these plants, seemingly common enough—often even growing at a botanist's doorstep—have proved to be entirely new to science. For instance, on the tiny British Caribbee isle of Dominica there grows abundantly a cabbage palm locally called *palmiste*, which has been illustrated on local postage stamps for years. Yet no scientist had ever studied this palm until 1940, when it proved to be an entirely new species!

Facts like this have stimulated the interest of at least some professional botanists who are determined to give palms the careful study they truly merit. The most celebrated student and collector of palms of our times is a nonagenarian, the very distinguished dean of American horticulture—Professor Liberty Hyde Bailey, who after completing a full and active life at Cornell University decided to study palms. At an age when most individuals are sitting at home, basking quietly in retirement, Professor Bailey may be found doing what is even tough

Bureau of Plant Industry photo

Fruit clusters of a California date palm, one of the many palms that figure prominently in commerce.

for a young man—climbing tropical mountainsides or penetrating the Amazonian jungles in the search of palms, old or new! Since his "retirement" he has built up at Ithaca one of the largest and best herbarium collections of palm specimens to be found in the world. Dr. Bailey's distinguished studies on this group have been honored by a monument of living palms growing in the famed subtropical Florida garden named after the equally distinguished botanical explorer, Dr. David Fairchild, who has also been a devoted student of the palms.

Despite the trouble they give the collector, not all the palms are giants. Certain palmettos of the Florida pinelands and of the West Indies are dwarfs scarcely three feet high with no trunk at all. And not all palms are trees, for Malayan rattans are scrambling vines that clamber upon forest trees often to a height of 200 or 300 feet. But the majority of palms assume the conventional aspect, with straight unbranched trunks topped by feather dusters of large clustered leaves.

Actually the leaves of palms are regularly shed below as new young ones appear at the top, where they are formed by the all-important single terminal bud that is buried deep in the feathery-green crown. Along the many streets where palms have been planted, pedestrians will do well to keep an alert eye for old falling leaves, for a single leaf of, say, a royal palm may easily weigh more than ten pounds—no joke if it lands upon an unsuspecting head. And speaking of royal palms, whose trunks often look like columns of poured cement, a lady visiting a tropical garden for the first time is said to have asked in all earnestness how and why they ever planted those green plants so high on those cement pillars!

Even the novice can distinguish two groups of palms by their leaf form. In one group, the leaves look like enormous feathers, as in the coconut palm. In the other group the leaves are fanlike, as in the giant talipot. From the fan-type leaf, palms possibly derive their name, because the leaf divisions radiate out like fingers from the human palm. Another explanation is that the name "palm" derives from the fact that leaves and branches of these trees were carried in the hands of victors in ancient triumphant processions and were bestowed by hand upon the honored one. But as in most flowering plants, real differences between palms exist primarily in flowers and fruits.

One would hardly grow a palm for its flowers. They are inconspicuous and scarcely more attractive than the tiny blossoms of their distant cousins, the grasses. But though small and petal-less, their numbers are legion. The flowers are borne in much-branched, often pendant clusters, which arise from large boat-shaped spathes readily seen just below the leafy crown of most species. A single flower cluster of an average palm measures from two to six feet long, but the enormous terminal flower crown of the Indian talipot (*Corypha umbraculifera*) may easily attain twenty feet in height. Flowers of this palm may number 60 million individuals per plant—real mass production! Conserving energy over a 30 or 40 year period somewhat like a century plant, the impressive talipot, unlike most of its relatives, flowers only once, throwing all its strength into one mighty blossoming splurge. When it has set fruit, it dies. An even more remarkable if yet unexplainable thing about talipots is that in a given region all individuals of this species will flower at one time in gregarious fashion. In June of 1918, from one observation spot in Ceylon, 200 talipots could be observed in flower.

Palm fruits, in size, color, and structure, are as divergent as the familiar dates and coconuts. They range from the size of a small pea to the great mass of a coconut; and the latter is the biggest seed in existence save for that of a relative, the famous double coconut, or coco de mer, of the Seychelles Islands, whose individual fruits may weigh from 30 to 40 pounds.

Commercially speaking, it is the fruit that is the most important part of the

palm plant. Many palm fruits are edible, the nutritive portion usually being the kernel, as in the coconut. But in other types, such as the peach palm, the farinaceous pulp surrounding the seed is the portion in demand. Both the external pulp and kernels of palms are the great sources of palm oils, which are called either pulp or kernel oils accordingly. The strategic importance of palms was brought to the fore in World War II when fats, needed as never before for food and explosives—not to mention their use in the manufacture of soaps, tin cans, and sheet metal—were (and still are) at a premium. Palm oil was scarce because most of it is derived from copra (obtained from the distant and then isolated South Pacific islands) and from the kernel oil of the west African oil palms. Distance has lent enchantment to these products, but it has also caused hardship, and unnecessarily, because in our own hemisphere there have always existed larger concentrations of native oil-yielding palms than anywhere else. Thus we have been "carrying coals to Newcastle." For besides the coconut and African oil palm, both of which are found cultivated in large quantities in tropical America, there are at least 25 other important native oil palms in South America alone. Fortunately, there are signs that our country is now aware of this hemisphere's own wealth of oil yielders, for many of these all-American species are now coming to the front commercially. Their native Indian names—babassu, tucum, ouricury, murumuru, dende, cohune, corozo, and bacaba—to name a few, sound like a voodoo chant. Latin-American countries, particularly Brazil, have begun to take note of their wealth in oil palms, and companies like United Fruit are investigating the possibilities of one of the American tropics' greatest potential export crops.

The economic possibilities in palm culture have mostly centered in the species supplying oil but are not limited to them. We think of cane as the principal source of our sugar supply, yet in the Far East palm trees produce one billion pounds of sugar yearly. More than a dozen sugar-producing palms are known in southern Asia alone; and as many potential yielders probably grow in our own hemisphere. Sugar-yielding palms are a perennial crop that needs no harvesting as do cane and beets. Like maple trees, these palms are merely tapped for their sugary exudate. It has been said that the world's saccharine palms, if properly tapped, could produce more sugar than all the other sugar-yielding crops combined.

It is easy to see what a wonderful society palms are: they have paraded across the pages of history; they are supplying our civilization with some of its most important plant products; they have long nourished the races of the tropics; and at the same time, they have cloaked the wild and cultivated gardens of those regions with a green elegance unmatched by any other type of plant. Surely they amply fulfill the billing given them by the great botanist Linnaeus, when he denominated them as *Principes* or "Princes" among plants.

THE EXPENSES OF THE PALM SOCIETY for the year ending April 17, 1957 will be, as nearly as we can reckon them, between $9 and $10 for every one of its present members. The cost of this one issue of PRINCIPES, including engravings, printing and mailing, will approximate $500, or over $2 per member. Though no member is obligated to contribute one cent during our dues-avoiding trial period of one year, may we suggest that those who have intended to aid the Society but, through some inadvertence, have not yet contributed, do so now? Please remit, in such amount as you see fit, to the Treasurer: Miss Margueriete Martin, P. O. Box 7173, Daytona Beach, Fla.

U. S. D. A.

Large Nipa palms in tidal pool at the Botanic Garden, Georgetown, British Guiana.

The Nipa Palm of the Orient

H. F. Loomis

Reprinted from The National Horticultural Magazine, *January, 1949, by kind permission of the American Horticultural Society and of the author.*

In temperate regions the word "palm" often carries with it a picture of a coconut-lined strand or of rank tropical jungles in which a dominant feature is palms of many kinds and sizes, but the diversity of habitats in which these plants may grow is seldom recognized. While a few palms are native in temperate regions, it is in the tropics that the species are found in greatest abundance and luxuriance, frequently associated with rain forests. The tropics, however, are not made up of low, humid jungles and verdant savannahs only but also contain high plateaus; great mountain ranges with peaks reaching far above any plant life; and even some of the earth's most arid and forbidding deserts. In some of these unusual plant habitats a few kinds of palms have adapted themselves so that one species of wax palm of the genus *Ceroxylon* rears the heads of its largest specimens higher than any other palm, possibly over 200 feet, in the cold, moisture-laden air of the Andes nearly 10,000 feet above sea level while closer to the equator a much shorter palm of the same genus is found at over 13,000 feet! The "Mazri" palm (*Nannorrhops ritchieana* Wendl.) inhabits the dry desert highlands of western India where winter freezing is common; date palms (*Phoenix dactylifera* L.) and the branching Gingerbread palms of the genus *Hyphaene* survive the tremendous heat and intense light of African deserts but must be where their roots can find abundant moisture; coconuts thrive on sea coasts and can grow even on coral islets that are almost destitute of other plants; and, as a final example of life under seemingly prohibitive conditions, the slender Ekman palm (*Coccothrinax*

ekmanii Burret), grows at a snail's pace to a height of nearly 30 feet from the merest pocket of humus in solid limestone rock on the tiny, arid, island of Beata off the south coast of Hispaniola. In their long lives these latter, supple, palms have bowed almost horizontally to many a hurricane, suffering little damage, and the lightest breath of air sets them swaying.

In a family of plants seldom thought of as containing aquatic species, the "Nipa" palm (*Nipa fruticans* Wurmb.) of the Orient more closely fits this classification than does any other member. Its habitat is at the other extreme from most of the palms just mentioned for it lives in tidal marshes and on the shallowly submerged banks of bays and estuaries from the Philippines and Burma through Malaya to northern Australia and westward to Ceylon. There are other water-loving palms, such as the "Monkey-cap" (*Manicaria saccifera* Gaertn.), several species of *Mauritia* and *Raphia* and a palm of southern Florida (*Paurotis wrighti* (Griseb. & Wendl.) Britton), in nature always found in swampy locations, but none of these palms is truly aquatic as they can be grown quite successfully on moist high land where the Nipa will not live. Whether in nature or where planted by man, the Nipa thrives only with its base at least partially submerged in brackish water each day. Thus its home is strictly limited to areas near the sea where fresh and salt water intermix on tidal lands, but here great areas may be filled with it as a single Nipa marsh in the Philippines has been estimated to contain more than 20,000 acres.

Botanically, the Nipa palm belongs in the smallest of the five tribes of palms, being associated only with the genus *Phytelephas* which is made up of a dozen species commonly referred to as the "Ivory nut" palms, all being found in the American tropics. Although these two genera now are separated by half a world, their ancestors may have lived much nearer each other for fossil "nuts" of a species close to if not identical with, the Nipa have been discovered in tertiary deposits near the mouth of the Thames.

The Nipa palm forms great, dense, clusters (page 41), spreading by means of a thick prostrate, branching subterranean rootstock, usually beneath the water, the ends of the branches bearing the leaves and inflorescences. The leaves are pinnate, bright shining green and may attain a length of 30 feet or more, rising from thickened bases and bending gracefully outward from the center of the clump. The stout and prominently scaly inflorescence is sent up three or four feet from the axil of a leaf and bears, at its apex, the globular head of female flowers while from several of the lower lateral scales secondary scaly branches are produced that terminate in large, stout, catkin-like structures on which the small male flowers are thickly arranged (page 43). The rich golden brown of the stem and large scales and the bright yellow of the male catkins make the inflorescences curious and strikingly beautiful objects during the few days they hold their color. The fruit that develops at the tip of the inflorescence is a rich mahogany brown, roughly globular body nearly a foot in diameter and composed of many coarse, protruding, rather conical carpels of varying size, only the largest of which contain single seeds nearly the size of a hen's egg (pages 43 and 45). Great numbers of the mature fruits are found floating in surrounding waters or even at considerable distances from them after the ripening season has passed.

The English have applied the names "water palm" and "water coconut" to this palm but one of the native Philippine names, "Nipa," has been accepted generally as the common English name and also has been made the scientific generic designation. In the various other countries where the palm is native, different vernacular names have been given to it.

The Nipa palm is of great local economic importance but its products seem not to have been exported in quantities to countries outside its range. Its principal use is to provide thatch for buildings and in many places this is the sole roofing material. In the large cities and

U. S. D. A.

Young inflorescence on Nipa palm at the U. S. Plant Introduction Garden, Coconut Grove, Fla. The female flower-head is seen in the center surrounded by the catkins bearing the innumerable tiny male flowers.

towns of the Philippines its use for this purpose has been prohibited in recent years because it is highly inflammable. The thatch is prepared by stripping the leaflets from the frond and tying their ends thickly in a "fringe" on a reed. Lengths of this fringe are fastened, one above the other, overlapping like shingles, until the roof is covered. Such a roof is said to give better protection and be more durable than one of coconut thatch. The leaflets also are used extensively for matting, basketry, bags, raincoats, etc., and the dried petioles of the fronds have been used for fishnet floats, to float heavy timbers, and also as fuel. By cutting off the young fruit at the proper time the remaining stem can be made to yield a tremendous quantity of sweet juice for a period of 45 to 90 days by daily removal of a thin slice from the top of the stem that causes the sap to continue to flow. Since the fruiting season of the palms extends over quite a long period not all the palms in a given area are ready to be tapped at the same time and the season usually lasts for about six months. It has been estimated that in such a period a single acre of palms in the Philippines may yield 3,200 gallons of juice. The juice can be used for the production of sugar, alcohol, vinegar or for making native wine called "toddy." Since the palms occupy land of little value, require no maintenance care and can be tapped at low cost, they are believed to be the cheapest source of sugar and alcohol known, but seem not to have been exploited extensively for the former although in 1919 a production of two and a quarter million gallons of alcohol annually was reported produced from this source. The species is of sufficient importance that in some parts of the Philippines tidal marshes have been cleared of other vegetation and planted with Nipa palms, after which little or no "cultivation" has been required for their maintenance.

It is not known when or by whom the Nipa palm was first introduced into this hemisphere but it was probably by the English sometime late in the 19th or early in the 20th century. In 1932 the writer saw large specimens growing in the botanic garden at Georgetown, British Guiana, and from them obtained 50 seeds that were sent to the United States Plant Introduction Garden, Coconut Grove, Florida. A single seed germinated and the resulting plant was grown in the greenhouse until the summer of 1935 when it was set in the edge of a tidal lagoon at the Garden. The plant made good growth and in December 1941 flowered for the first time but did not develop a fruit head. Since then this palm has produced a number of inflorescences, and from them developed a few fruit heads that grew to considerable size but contained no viable seeds.

In the spring of 1938, Col. R. H. Montgomery, Old Cutler Road, Coconut Grove, Florida, obtained a dozen seeds by air express from the British Guiana plants, and from them grew five plants that were set in the margin of a tidal pool in his grounds. These palms also have grown well and for two years have been flowering, with one inflorescence developing a head containing a few seeds that now are germinating. These plants have produced flowers from late September well into the summer but it was from the early spring flowering this season, when two or three of the palms flowered simultaneously, that the seeds developed. It is possible that cross fertilization may be required for seed production, which would account for the failure of the single palm at the Plant Introduction Garden to set viable seed.

The two foregoing cases are the only ones known to the writer of successful establishment of this palm in South Florida although Bailey's Cyclopedia of Horticulture (1916 ed.) mentions that it was introduced there but gives no further details and no other records have been found. Mowry, in "Native and Exotic Palms of Florida," Bull. 228, Fla. Ag. Exp. Sta., 1931, questions the planting of the species in Florida.

The palms that have been established here have undergone a number of hurricanes in one of which they were com-

U. S. D. A.

Three mature Nipa fruit-heads showing the large seed-bearing carpels among many smaller sterile ones.

pletely submerged in salt water for two or three hours at least. Also they have been exposed to several quite severe freezes, surviving both storms and cold with only superficial damage to their leaves. The fact that roots, trunks and growing tips were beneath the water undoubtedly accounts for the escape of this very tropical palm from cold damage and, being by nature inured to brackish water, flooding by sea water for short periods is not especially harmful. With the cold protection that is afforded plants in or near water, the range of the Nipa palm in Florida should be quite extensive and possibly may extend along both coasts, in suitable locations, from the middle of the state southward. As it probably will be found that this palm can be grown successfully elsewhere along these coasts its importance will be greatly increased over that locally demonstrated, for it will fill a landscaping need that no other plant does for beautifying the drab, muddy margins of tidal pools, drainage canals and other waterways and parts of the extensive mangrove swamps that skirt many sections of our shores. The Nipa palm can be made an interesting and attractive part of our tropical flora even if none of its native commercial products is utilized.

Coconut Grove, Florida.

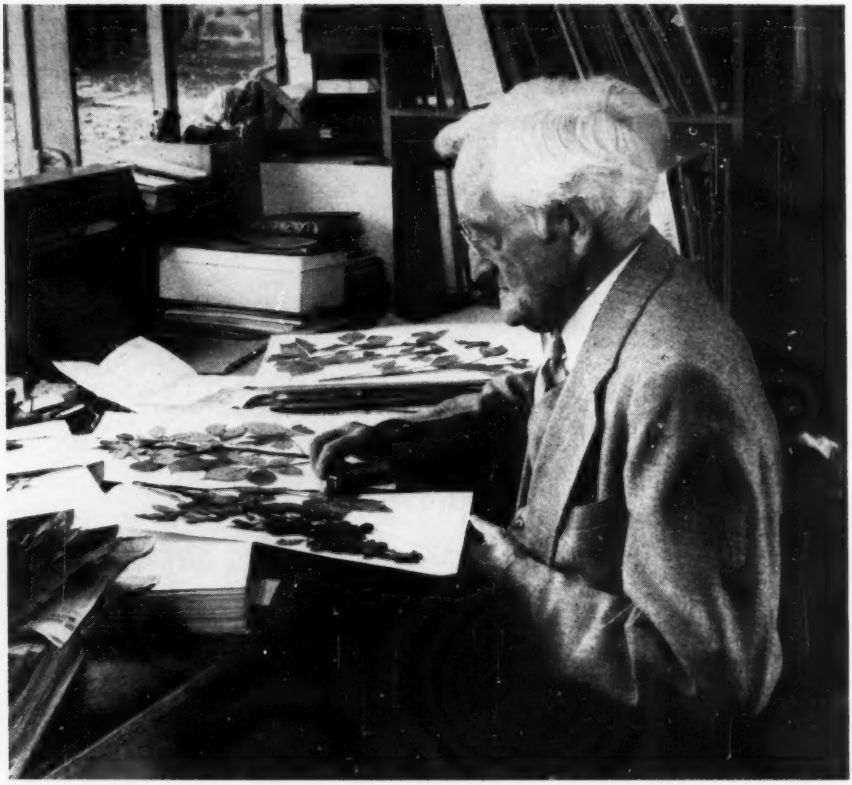


Photo courtesy of Bailey Hortorium

The late Dr. Liberty Hyde Bailey working, in his advanced age, at one end of the long shelf that served as bench and desk.

Editorial comment on the Bailey Memorial: Perhaps no single group of people has benefited more from Dr. Bailey's Herculean labors with the palms than the fanciers and lovers of the palms. That seems to mean us—the members of The Palm Society. Without a doubt some of us may feel that we are greatly indebted to Dr. Bailey, and that it would be distinctly a privilege to honor his memory by making a gift to the Memorial. Dr. Lawrence, in his remarks on the adjoining page, of course did not even allude to a "debt," and moreover he would not under any circumstances. Yet it is eminently the right word for those of us who would prefer to see it in that light. If you are one such member, please make your check payable to Cornell University and send it to the Bailey Hortorium, Ithaca, N. Y.

A Working Memorial to Liberty Hyde Bailey

George H. M. Lawrence

The name of Liberty Hyde Bailey is a byword to all familiar with the literature about our palms. No other scientist has made so many contributions to our knowledge of cultivated palms. Bailey knew the palms in their native haunts, and in the gardens of Florida and California, not to mention those of the American tropics.

Bailey's ultimate aim was to monograph the palms. He outlined such a work, had photographs and drawings for it. His death at the age of 96 interrupted this work.

Dr. Bailey added Dr. Harold E. Moore, Jr., to the Bailey Hortorium staff in 1947, knowing his understanding of the need for further palm studies, his botanical training at Harvard and his field knowledge of Southern United States and Mexican floras. Dr. Moore has made many palm-collecting trips in the American tropics. This year he studied palms in the classical collections at Florence; at Brussels and Leiden; and at other European centers. These studies and Dr. Moore's enthusiasm for the palms practically assure ultimate production of a palm monograph.

The institution doing this palm work and other research was founded by Bailey, and given by him to Cornell University in 1935. He poured funds into its development and financed his own work and travels of exploration; but he was never able to endow it. Support for its nucleus staff of scientists has come from Cornell.

Last year the staff serviced over 3,000 inquiries from all over the country, asking for information such as —

"Please tell me the name of the enclosed plant."

"Where can I buy plants of . . .?"

"When was . . . first introduced to American gardens?"

"Please tell me the name of the latest monograph on . . . "

"What is the correct scientific name of 'Bells of Ireland'?"

The demands on Bailey Hortorium staff members increase yearly, and reflect the growing recognition of its work. The number of persons taking greater interest in garden plants grows as never before. The Bailey Hortorium must keep pace with this increasing interest. For this, it has the building space, equipment, gardens and needed facilities. It lacks the personnel to do the work.

To overcome this deficiency, and to give proper recognition to the accomplishments and goals of the greatest man American horticulture ever produced, the Liberty Hyde Bailey Memorial Fund is being established. This endowment of $500,000 is being raised from friends and admirers of Liberty Hyde Bailey, from corporations, horticultural groups, and individuals. Inasmuch as all gifts are made payable to Cornell University, they carry the tax exempt status allowed for contributions to educational institutions. The Bailey Hortorium receives and processes them, depositing the monies in the Cornell endowment fund, with all the income returned to the Bailey Hortorium.

Thirty-four American horticultural groups have endorsed the establishment of this Memorial Fund. All endorsers will receive recognition for their support in Bailey Hortorium publicity. All contributions of $500 and over are Founders of the Memorial Fund and will have their names on a bronze Founders Plaque to be unveiled at the centenary of Bailey's birth. Contributors of $100, who accompany this gift with a pledge of $400 more, are counted as Founders.

All photos accompanying this article by A. C. Langlois. Above: *Malortiea latisecta* (*Reinhardtia latisecta*), Stann Creek Valley.

A Trip to British Honduras

to see and photograph the palm "with the windows in it leaves"

M. A. Langlois

After becoming interested in palms our great desire for many years had been to see the palm "with the windows in its leaves," at one time listed under the genus Reinhardtia, but now usually known as Malortiea.

Dr. Max Burret of Germany, a well-known palm botanist, had been sending us his bulletins on palms for years and in one of them he described certain palms from British Honduras, among which were two palms of this genus, the *Reinhardtia latisecta* and the *R. gracilior*. Also palms of interest mentioned were the Schippia, Asterogyne, Calyptrogyne and Hexopetion. All of these were new to us and we wanted not only to see them but to photograph them, so we packed up our bags for British Honduras.

Through the kindness of the Forestry Department in Belize we were invited to spend a short time at one of their mahogany camps, Camp Silk Grass, located in the depths of the virgin forest where we lived in an Indian hut, the sides of which were built of the stems of the *Paurotis Wrightii* and the roof of which of the leaves of the Cohune palm, *Orbignya Cohune*.

We had a wonderful week there. Every day we went into the forest and collected and photographed Geonomas, Chamaedoreas, Euterpe Eleutheropetalum and Synechanthus.

The day before we left the camp we had the great fortune to see a "Cohune ridge." This is a term given to a stand of Cohune palms where they grow to the exclusion of all other vegetation. This wonderful sight is best described by a Mr. R. Temple, who was Chief Justice of British Honduras in the year 1854—

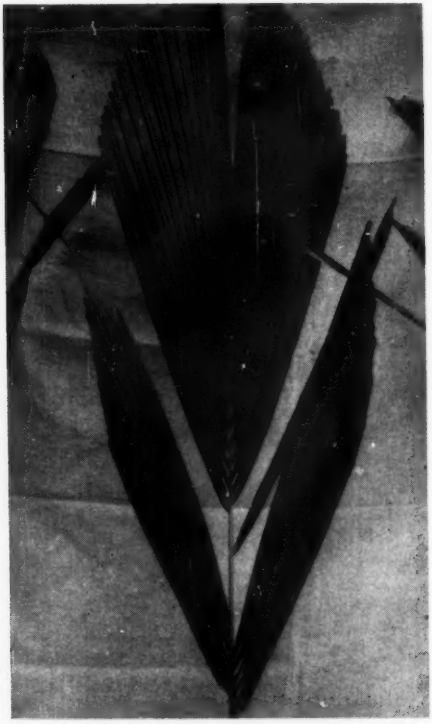
"The Cohune resembles in appearance the Cocoa-nut Palm, but it is not nearly so high as that tree, and the trunk is considerably thicker. The order and regularity in which it grows is surprising. I have seen rows of it presenting the appearance of having been planted with the greatest care, long avenues which clearly resemble the nave and aisles of a cathedral, the arched leaves meeting overhead and producing an exact imitation of the vaulted roofs, and if the sun was declining, the horizontal rays, shining at intervals through one side of the avenue, created the splendid effulgence of the most richly painted window."

Mr. J. H. Faber, Crown Surveyor in the same year, writes:

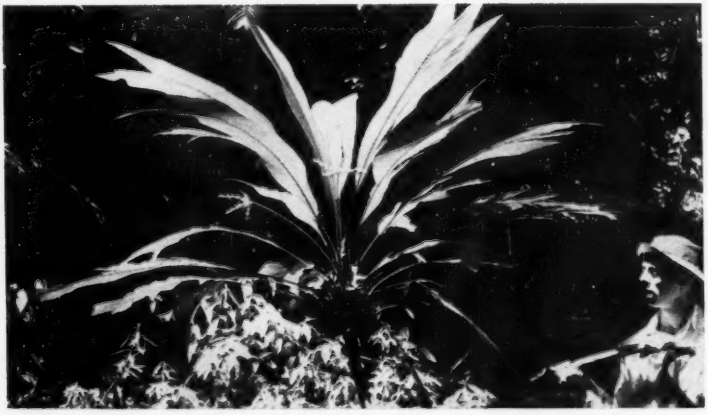
"The cohune-trees grow at an average distance of fifty yards from one another, thereby forming arches of evergreens, which soften the ardent rays of the tropical sun, and give a grand air to these forests, the silence of which is only broken by the twitter of bright plumaged birds, or the solitary cries of some wild mammal roaming in the wildnerness."

Regardless of all these wonderful sights we had not yet seen our Reinhardtia, but were not surprised or disappointed as it had been described by Dr. Burret as located by William Schipp in the Stann Creek Valley at Mile 19, so we went back to Stann Creek and lived with the Agricultural Officer and his wife who were extremely kind to us. (There was no hotel or boarding house in Stann Creek. This we did not know.)

By this time the young forestry man in charge of Camp Silk Grass had become interested in what we were doing and being a botanist had been able to help us with some of our determinations. Therefore he decided to come down to Stann



Showing the leaf of the *M. latisecta* with its "windows."



Asterogyne Martiana—a full grown plant with fruiting spadix.

Creek not only for the weekend as he usually did but to stay over and help us locate the Reinhardtia.

We were able to hire a taxi and with great expectations entered the forest at Mile 19 in the Valley. It was lovely — breathtakingly lovely—tall trees, ferns, palms, and a stream. Running water was there and all it conjures up when flowing through the depths of a forest. We crossed over this stream by means of a huge log as thick through as a man's body, and there before our unbelieving eyes was the palm we had come to British Honduras to see. It was more beautiful than we could ever have imagined. In all its parts it was a perfect gem. In leaf of the deepest green, in fruit the colour of a ruby, in fruiting stem the colour of blackest night, in habit of growth graceful beyond description. The small picture gives but a small idea of its loveliness.

We were perhaps slightly disappointed at the size of the "windows." I do not know what we had expected to find, but we had thought that the windows would be larger and more spectacular; however, in the picture of the leaf of this palm will be seen these fascinating little "windows."

What was the most spectacular thing about the palm was its general appearance. It is a suckering palm that attains a height of fifteen to twenty feet, and in the quiet and hush of the dense forest each leaf is perfect, crisp and of the greenest green, and with its bright red fruit hanging from a jet-black fruiting spadix it is a lovely thing on which to feast one's eyes.

To make our joy complete that morning we found also the *Asterogyne Martiana*, a lovely little palm. We were very happy that we recognized it immediately from the description. Very encouraged, we then made a thorough search for the other Reinhardtia described, the *R. gracilior*. We never found it.

The new genus, Schippia, was also described as being found in the vicinity of Mile 19 and we looked for that, but failed to find it in the first few days; however, on the last day, Moody, my Indian boy, and I went in search of it. The husband had to remain at the Agricultural Station to pack up the plants we had collected in the forest.

This boy, Moody, had been loaned to us by the Forestry Department when at Camp Silk Grass and had made himself

Tree of *Schippia concolor* which was cut and brought in by Moody for photographing.

indispensable to us, and was our faithful friend and helper up to the very last moment when our boat weighed anchor to leave British Honduras. In this effort to find the Schippia, Moody made me climb three waterfalls without finding anything, so when he promised me faithfully that there was a stand of them back of the "hill to the west," I told him to go by himself and bring me one to photo-

The flowering spadix of the *Schippia concolor* which resembles somewhat that of the Cryosophila.

The reclining trunks of the Opsiandra found on the hillside of Jones' Landing, Sabun River.

graph, also if possible a couple of seedlings to take home to Nassau to plant. This was a tall order, but I did not expect anything. After an hour or so of waiting Moody returned with a palm on his shoulder and two seedlings in his hand. (See the photograph with Moody and his palm.)

It was the Schippia. It fortunately had a flowering spadix which was later determined by Dr. Bailey to be that of the Schippia.

After our return to Belize we went into the north country and saw and photographed the *Acrocomia belizensis* and the *Cryosophila argentea.*

One day we took a trip up the Sabun River in quest of the Hexopetion, which our Moody had promised us we should find there. (Later we discovered his family lived on the Sabun and it was one way to visit them.)

We did not find the Hexopetion, but at Jones' Landing we found an Opsiandra growing on a hillside and owing to lack of soil there the trunks were reclining as shown in the picture. The *Opsiandra Maya* had been described by Dr. Cook from Guatemala and Dr. Bailey felt that this palm of the Sabun River might be a new species. Material was sent him by the Forestry Department, but no definite conclusions were reached as far as we know. This tree is growing and fruiting at The Retreat should any botanist wish to determine whether it is a new species or Dr. Cook's *O. Maya.*

We are grateful to Moody for taking us up the Sabun. This river winds its way through limestone cliffs, and on its banks grew bamboos and many flowering trees having flowers of yellow, blue, white, pink and red. The bottom of the river was clear sand and the water blue, and the canoe slipped quietly through the water. It was a lovely day.

So ended our trip to British Honduras and even though we were unable to grow the *Reinhardtia latisecta* in The Retreat garden our memories of it are very pleasant and we hope someone who has conditions more suitable to its well-being will some day bring it out into cultivation where it can be admired by many or all palm lovers.

— The Retreat, Nassau,
November, 1956

HOW TO JOIN THE SOCIETY

Anyone interested in the palms may join the Society by notifying the Secretary of his wish to be enrolled.

The society has no fixed dues at present, for moderate dues, with the still small membership, would not produce enough revenue to pay all expenses of operation. It is relying for its support upon voluntary contributions from the members in such amounts as their circumstances warrant. This method of support is being tried out for an experimental period of one year. Nevertheless the Society must have funds in order to subsist at all, and prospective members are urged to send a check, if able to do so, at the time of their application for membership—which would obviate the necessity for solicitation, thus saving time and expense.

Please address the Secretary: Mrs. Claire Hargert, 195 Halifax Drive, Ormond Beach, Florida.

The Genus Acanthophoenix

Alex D. Hawkes

The palm genus *Acanthophoenix* dates from the year 1867, when Hermann Wendland named two palms from the Mascarene Islands, previously known as *Areca crinita* and *A. rubra*, as *Acanthophoenix crinita* and *A. rubra*, respectively (in FL. DES SERRES 16: 181, pls. 1706-7. 1867.). Today, these handsome plants, known under cultivation as Barbel Palms, are relatively frequent inhabitants of our gardens and palmetums, where the statuesque beauty adds greatly to the landscape. In their juvenile forms, they are perhaps even more popular, because of the tinged fronds. As yet, only the two species are known to science. They are allied to the genus *Deckenia* Wendl. ex Seem., from the Seychelles Islands, and belong to the tribe *Areceae*.

The generic characters for *Acanthophoenix* are as follows: Slender pinnate erect solitary palms to 60 feet high, with ringed spineless trunks. Leaves very long and graceful, arching or with the lower ones almost pendulous; pinnae close together, long, narrow, strongly nerved and with a prominent midrib, in the juvenile plants red—(A. rubra) or yellow-veined (*A. crinita*), and very attractive; leaf sheaths more or less spiny. Spathe thin and papery, consisting of two parts (valves), deciduous on maturity. Spadix robust, two-branched, with strongly pendent rachillae of very numerous flowers that are set closely together; stalk more or less spiny. Flowers unisexual, red-purple, white, yellow, or pinkish, fragrant; usually one pistillate flower borne under two staminate ones, the latter larger in size; staminate flowers with prominent white anthers, spreading; pistillate flowers scarcely opening, bud-like in appearance, almost globular; sepals and petals 3. Fruit about 1/2 long, globose, hard, black.

The Red Barbel Palm, *Acanthophoenix rubra*, is a slender, erect species to as much as sixty feet in height. The singularly handsome young specimens have prominently red-veined fronds. The mature leaves reach a length of about twelve feet; they are gracefully arching, and bear some bristly spines on the lower midrib of each pinna and on the leaf-rachis itself. The basal sheath is conspicuously covered with black spines. The numerous, linear-lanceolate pinnae are 2-pointed at the apex, and lighter in color beneath than on the upper surface. The spathes subtending the inflorescence of *A. rubra* reach a length of almost two feet, and are often furnished basally with a few black spines. The spadix is about three feet long, with some short rigid spines at the base, and has the rachillae more or less straight and densely many-flowered. The pistillate flowers are hidden by the much more abundant staminate ones, and are interspersed among them. The staminate blossoms have reddish-purple petals and much shorter, smaller, whitish sepals. The almost globular fruits which measure about one-half inch in diameter, are shiny black in color. This attractive palm inhabits Reunion Island in the Mascarenes, and formerly existed as well on nearby Mauritius, but according to recent authorities, is probably extinct in the latter area.

The Yellow Barbel Palm, *Acanthophoenix crinita*, is similar to the other species, *A. rubra*, in general habit, but when young has yellow-green fronds; it is also, in most instances, somewhat less robust in appearance. The leaf-petioles of *A. crinita* are fuzzy, bear a few slender spines at the sheathing base, and are not as wide as those of the other species. Both spathe and spadix are shorter than in *A. rubra*; the spadix has a few rigid spines to about eight inches long near the base, and

its rachillae are rather crooked. The staminate flowers have white, yellow, or pinkish petals, and sepals which (as in the other species) are noticeably shorter. The pistillate blossoms measure about one-quarter inch in length when mature. The more or less oblong fruit is about one-half inch in length, rather irregular in shape, and black in color. This handsome palm inhabits both Mauritius and Reunion Islands, in the Mascarene group.

Photo by R. E. VAUGHAN

Acanthophoenix crinita, Mauritius, where it is native (Fig. 69, *Gent. Herb.* VI, 1942).

Photo by David Barry, Jr.; likewise the photo below and that at upper right. An immense specimen of *Jubaea spectabilis* near Riverside, California.

Another view of the same palm. Because of obstacles, the entire tree could only be photographed in two stages.

Showing the massive trunk of the same Jubaea specimen pictured on the facing page. Mr. Barry comments as follows: "The seed of this *J. spectabilis*, the Chilean wine palm, was planted by J. Harrison Wright on his orange ranch in the outskirts of Riverside, Cal., about 1894. This noble plant is about 5½ ft. in diameter at shoulder height and is perhaps the largest in this dimension in California. 46 years later Mr. Wright harvested the first crop of seed produced, and in sharp competition with squirrels. This long period 'from seed to seed' is not typical of other specimens in the vicinity which produced seed many years earlier. Mr. Wright was one of the first palm collectors in California, and his stand of hardy palms is second in importance only to that of the Huntington Botanic Garden in San Marino, Cal. He was a close friend of Dr. L. H. Bailey. On Dr. Bailey's last trip to California, about 1943, Mr. Wright and his sister drove him to northern California for his first view of the giant redwoods. Some of the palms on the Wright place were photographed and described by Dr. Bailey in some of the first fascicles of *Gentes Herbarum*."

Photo by Edwin W. Moore. A different specimen of *Jubaea spectabilis*, also an imposing tree and also growing at Riverside, California. Seedlings of the species are now available in Florida, but half a century must elapse before the stature of the California trees can be approached.

The "palm stamps" here illustrated have been enlarged 1½ times their actual size to secure better detail. Had we been able to reproduce them in their colors, the effect would have been considerably enhanced. They were lent to the Society, for the above illustration, through the courtesy of Mr. Nolan W. Kiner, Instructor in Horticulture at Pierce Junior College, 6201 Winnetka Avenue, Woodland Hills, California. Mr. Kiner writes as follows:

A feature to which I have been devoting some time, and from which deriving much enjoyment of late is "Palms displayed on postage stamps of the world." Within less than a year of part-time observations and notations, some very interesting factors have come to light.

As might be expected, the great proportion of countries issuing stamps showing or pertaining to palms are those of the mild latitudes. . . . The areas of concentration of countries abundant with palms, and therefore frequently honoring palms on their postage stamps, are broadly as follows: the great groups of tropical islands of the East Indies, eastward to at least Samoa; and the numerous subdivisions of practically all of Africa. Some of the other areas and countries which rank high in palm, or palm-scene postage stamps issued are: northern South America, Central America, the West Indies, India and nearby regions.

One palm conspicuously dominates the issues of stamps from the above countries, the only species currently included in its

genus, the truly tropical Coconut Palm (*Cocos nucifera*). This graceful beauty appears standing alone, along river and ocean shores, about native villages, about public places, silhouetted against skylines, worked into borders of stamp designs, and in just about every other imaginable way. Other not necessarily less important species often seen are: The Royal palms (*Roystonea*, several species), and even more frequently, the true Date Palm (*Phoenix dactylifera*).

It is not always easy, or even possible at times, to determine what species is being shown, but a few other observable kinds are: the Wine Palm (*Raphia vinifera*), the African Oil Palm (*Elaeis guineensis*), the Cohune Palm (*Attalea Cohune*), the Coco-de-mer or Double Coconut Palm (*Lodoicea seychellarum*), and what appears to be the fronds of the so-called Parlor Palm (some species of Chamaedorea).

Other fascinating aspects of this study are that one begins to learn something of the heretofore (in my experiences) obscure countries and places. Beyond this is a wealth of material coming to light about such things as: other plants and products of the world, animals, people, geography, art, and many other informative values.

Some of the countries, colonies, and protectorates which seem to have come forth with consistently striking issues, involving principally palms or palms combined with animals or scenes, are as follows: Belgian Congo; Liberia; Nigeria; Algeria; Ruanda-Urundi; Martinique; French Equatorial Africa; Nyassa; Fiji Islands; and Jamaica, to name only a random few.

In the latest (1956) Scott Standard Postage Stamp Catalogue, composed of over 2000 pages, I have proceeded through slightly over 400 pages. By seeking out countries which display one or more stamps showing palms in any way, I have compiled a listing of close to 200 different issues, not including numerous blocks or series where from 4 to 12 or more stamps are listed of varying denomination and color exist for the same scene. The total could come to several thousands of stamps depicting palms alone. Perhaps some of our own members or their friends have made a more complete and accurate study of this captivating hobby, and could supply a better figure.

I had felt that the general stamp world was far too vast for me and had intentions of narrowing this field to a topical type of collection (palms in this case) only to find that it is also quite vast. I possess but a small fraction of those which I have thus far spotted in the catalogue, but hope to persevere and have fun while doing same . . . If this hobby happens to strike a note with any of our members or any of their friends, I would be most pleased to do a bit of trading and corresponding.

We have some very few but magnificant specimens in western Oregon of Trachycarpus and Chamaerops palms. The oldest palm in the state was planted in 1871 at Jacksonville, Oregon, near Medford. Unfortunately most of our populace are unaware of what might be done with the hardier palms. Those who are acquainted with the possibilities gloomily point out the slow growth of palms in the region; however, they are no slower growing than, say, the widely planted holly. Nor is a well established Trachycarpus any more frost tender than the native Port Orford Cedar of the coastal zone, and in fact not nearly so.

— Robert L. Bishop

Fig 1. *Washingtonia filifera, Phoenix canariensis* and *Butia capitata* at Yashiroda Junkaen in winter and covered with snow. Photographed in 1954. (All photos supplied by the author.)

Fig. 2 - *Phoenix canariensis*, *Washingtonia filifera* and *Casuarina stricta* tree at Yashiroda Junkaen.

Some Palms at Yashiroda Junkaen

Kan Yashiroda

It is recognized that Yashiroda Junkaen (Yashiroda Acclimatization Garden), a non-profit garden of our family, has the largest number of genera and species of mature palm trees grown out of doors in Japan. At the request of our president, I have here touched upon some of the palms that have succeeded at our Acclimatization Garden—which may be of interest to some members of our society.

Yashiroda Junkaen is situated in the southwestern part of Shodoshima, a little island in the Seto Inland Sea, at 134° 16' east longitude and 34° 36' north latitude. Shodo Island is pictured in color and described briefly in Mr. Willard Price's 'Cruising Japan's Inland Sea" (The National Geographic Magazine, November, 1953). Our lowest temperature has been 20° F., and we experience 22° and 24° F. sometimes in January and February as recorded by the observer of the Japan Tobacco Monopoly Corporation not far away. I think there are many spots where even lower temperatures are experienced. We have the first frost in middle to late November and the last one usually in late March, but in some years the last frost occurs in mid-April. *We experience very severe frost very often.* Snow is rare on level land, as we are situated, but once or twice in every three or four years we have snow like that appearing in Figure 1. Our island is in one of the zones of minimum rainfall in Japan. Our rainy season is mid-June to mid-July, and then the weath-

er is bone dry and hot until early September.

The photograph reproduced here as Figure 1 was taken on a snowy day in early March, 1954. The snow had melted, as usual, on the next day. When the two *Washingtonia filifera* seen in the central background were less than three feet high, all the leaves were heavily laden with snow, one winter day, and lowered to the ground level. The two trees now regularly produce flower stalks in August, but as we have the typhoon season in September the young fruits are devastated in most of the years. The young *Butia capitata* thrusting only its leaf-tips above the snow was raised from one of our mother trees which bear the edible fruits annually and abundantly. Some of the *Butia capitata* produce flowers and fruits only every other year. I think that these poor trees, to judge from the behavior of the others which also are not given manure but grown in a more favorable soil, would bear fruit annually if manured.

In Figure 2, the extreme left *Phoenix canariensis* is a male and the next is a female. Both trees were planted about 1920; the Casuarina tree and the other *P. canariensis* in 1928; and the Washingtonia palms in 1927.

There is a thick-trunked Phoenix with dark purplish fruit which has proved to be hardier here and there. One Phoenix tree produces a pretty coral-colored flower stalk which is highly thought of by the flower arranger. *Phoenix sylvestris* and certain minor types grow well here.

In Figure 3, the *Sabal Palmetto* in the background has a trunk ten feet high. Although it produces flower stalks annually, it matures fertile seed only once every three or four years. There is no other Sabal palm here, except *Sabal minor*, which produces both flowers and fruit every year. There are few plants, if any, which attract more bees, flies and other insects than the cabbage palmetto when in bloom at our Acclimatization Garden.

The Butia sp. (?) in Figure 4, the photograph of which was taken in 1942,

Fig 3 - *Sabal Palmettio* in the center is maturing seeds every year.

Fig. 4 - Butia sp. (?) in the center, so-called *Cocos campestris* in the foreground now 10 feet high, *Butia capitata* on the left and right, and *Chamaerops humilis* at the right of my son. Photographed at Yashiroda Junkaen in 1942.

Fig. 5 - Butia sp. (?) in the other picture. The trunk is not like the trunks in any *Butia capitata* group at my garden.

Fig. 6 Butia sp. (?) in the photo in which my son is standing. Photographed when younger (1935).

was started in 1928 from seed. I could not trace the source from whence it came nor identify it. The leaf-bases are not persistent on the trunk as in several species of Butia grown here for many years. The trunk is now twelve feet high, with a width of 23 inches at the base and 12.5 inches at eye level. It produces flower stalks annually, but never bears fertile seed nor becomes fertile with the pollen of Butia species. As seen in the same figure, the trunk is clean and somewhat ringed. The seeds are very like those of *Butia capitata*, and in fact almost identical. As seen in Figure 4, the trunk is clean and somewhat ringed. It appears also in Figure 5, in a photograph taken in 1935 when it was young. The so-called *Cocos campestris* on the left side of my son in Figure 4 is now ten feet high and notably the leaf stalks are curved. I should be grateful if any member could inform me the name or any instruction.

During the miserable years of the forties, I was obliged to cut down and clear away many rare trees and some of the commoner kinds mentioned above, and I lost the valuable established and young palm trees; the seeds of many of those plants are not yet again procurable.

In our country, *Trachycarpus excelsa*, Wendl. is extensively grown for its fiber, while *T. Fortunei*, Wendl. is highly valued and much planted in our gardens and home grounds. *Rhapis humilis* and *R. flabelliformis* are widely grown as ornamental plants in pots and also in gardens. In the future I should like to write on the palms utilized or developed in Japan.

Photos by Stanley Kiem. Upper left: dying specimen of *Arikuryroba schizophylla* attacked by fungus at the Fairchild Tropical Garden.

Upper right: fruiting body on the trunk of the ailing palm, identified by the Gainesville mycologists Martinez and West as *Ganoderma sulcata* — a fungous disease always fatal when advanced.
Lower left: healthy Arikury palm near at hand and so perhaps endangered. The fungus seems to prefer the Queen and other cocoid palms.

Photos by Lola Smith. At left: Group of Cuban "belly palms," *Colpothrinax Wrightii;* James E. Smith up a tree (and what a tree!), standing on the ventricose section to collect seed At right: the native Cuban *Calyptronoma dulcis,* Jim Smith in foreground avidly collecting seed. Both pictures at Consolacion del Sur, Cuba.

Wanted • For Sale • Exchange

This department is designed to become a valuable service to our members, filling a sad lack. The revenue from it will be insignificant, but perhaps sufficient to pay the cost of printing it. The greater the number of ads, the greater the value as a prime source of practical information and interest. Ads for the next issue must be received by February 10, 1957. Please do not space out the copy, and please confine it to matter bearing on the palms. Rates: 25c a line or part of a line, straight-run, $1 minimum charge. We cannot afford the cost of billing these small charges. Kindly remit to the Treasurer, AFTER publication, counting the lines to determine the charge.

Wish to buy good small specimens of Aiphanes acanthophylla, Chamaerops humilis, Mascarena lagenicaulis (bottle palm), Syagrus Weddelliana, true Phoenix rupicola. Pay now, take delivery March-April. W. W. Hargert, 195 Halifax Dr., Ormond Beach, Fla.

Wish to exchange plants of uncommon palms. Write for list. Wish to buy copy of Blatter's "The Palms of British India and Ceylon" in any condition. Nat J. De Leon, 8300 SW 62 Place, Miami, Fla.

Impossible to find (?) seedlings, 3-in. pots to egg-can size. Borassus flabellifer, Arenga pinnata, Coelococcus amicarum, Hyphaene thebaica, Stevensonia Borsigiana, Raphia Ruffia, and many other rare palms & cycads. No shipping at this time. Vero Beach Nursery, Vero Beach, Fla., 2 miles south of town, Highway No. 1 near McKee's Jungle Garden.

Wanted to buy: Seeds of unusual palms and cycads. E. Moore, 1159 Missouri, San Diego 9, Calif.

Cash for out-of-print palm fascicles of Gentes Herbarum series. The Palm Society, Box 7173, Daytona Beach, Fla.

Wanted: Any information that will enable us to obtain palm seeds from New Caledonia. Mr. & Mrs. A. C. Langlois, P. O. Box 1656, Nassau, Bahamas.

Japanese member, Hiroshima, wishes to purchase used copy Dahlgren's "Index of American Palms." Please address his daughter: Miss Toshiko Satake, 1239½ W. 31st St., Los Angeles 7, Calif.

Palm Society members: Adonidia, Alexandrae, Fish-Tail, Areca, Cocos plumosa, Royal Palm seedlings .45 per doz. Phoenix Roebelenii .75 per doz. Dictyosperma album, Thrinax parviflora .85 per doz. Min. order $2.00. Include postage, .30 in Fla., .50 other states. Palms listed above in cans to 3', .20 to .75 - No shipping in cans. I am interested in exchanging palm seeds and plants. Edward J. Campbell, Box 166, Goulds, Fla.

Hawkes' "Major Kinds of Palms," bound copies, plus reprints palm articles. Send for free list, to Alex D. Hawkes, 625 Temple Hills Dr., Laguna Beach, Calif.

Want to buy: a few good viable seeds of Malortiea (Reinhardtia). Or, will exchange; let me know your requirements. Mrs. L. H. Wait, 7229 S. W. 54th Ave., Miami 43, Fla.

Chamaedorea stolonifera. A collector's item from Guatemala. The stems are numerous, thin and delicate, of a thickness of two matches. The leaves are like a single tuna tail, remaining simple and not splitting into leaflets. This plant is fine for the smallest conservatory. Nice plants out of five-inch pots, $7.50 including packing. California Jungle Gardens, 11977 San Vicente Blvd., Los Angeles 49, Calif.

Wanted to buy: 5 or 6 yr. old specimens, 1 each, Zombia antillarum (Cook's Oothrinax anomala), Heterospathe elata, Syagrus Treubiana, Syagrus insignis, Chrysalidocarpus lucubensis, Chamaedorea elatior, Copernicia Baileyana, C. Gigas, Sabal jamaicensis, Jubaeopsis Caffra. Will also buy in any size these hard or impossible to find palms: Cyphokentia (any species), Deckenia nobilis, Jessenia oligocarpa, Kentia australis, Clinostigma Mooreanum, Morenia latisecta, Calamus leptospadix, Plectocomia khasyana, Reinhardtia elegans, Rhopalostylis Baueri, R. Cheesemanii, Wallichia disticha. W. densiflora. Will remit now, pick up April. Dent Smith, 2514 S. Peninsula Dr., Daytona Beach, Fla.

Numerous kinds of palms, large & small. Send for list with sizes, prices. Smith's Nursery, P. O. Box 508, Oakland Park, Fla.

If it exists in U. S., will pay high price for healthy Juania australis, gtd. grown fr. Juan Fernandez seed. Collector, C/o Palm Soc., Box 7173, Daytona Beach, Fla.

Seeds: Fresh stock, Arecastrum Romanzoffianum (Cocos plumosa) from the hardier broad-leafed strain, $1.50 per 100 postpaid, $7.50 per 1000 F.O.B. Livistona chinensis (Chinese Fan Palm) seedlings grown in 2½" and 3" pots $20 per 100 F.O.B., $3.50 per 10 postpaid. Washingtonia robusta, 2 ft. tall, in gallon cans, $1.50 each, 4 for $5 F.O.B. Phoenix reclinata, heavy plants in gallon cans, same price as above. Martin J. Wittbold, Nurseryman, 1084 Ridgewood Ave., Holly Hill, Fla.

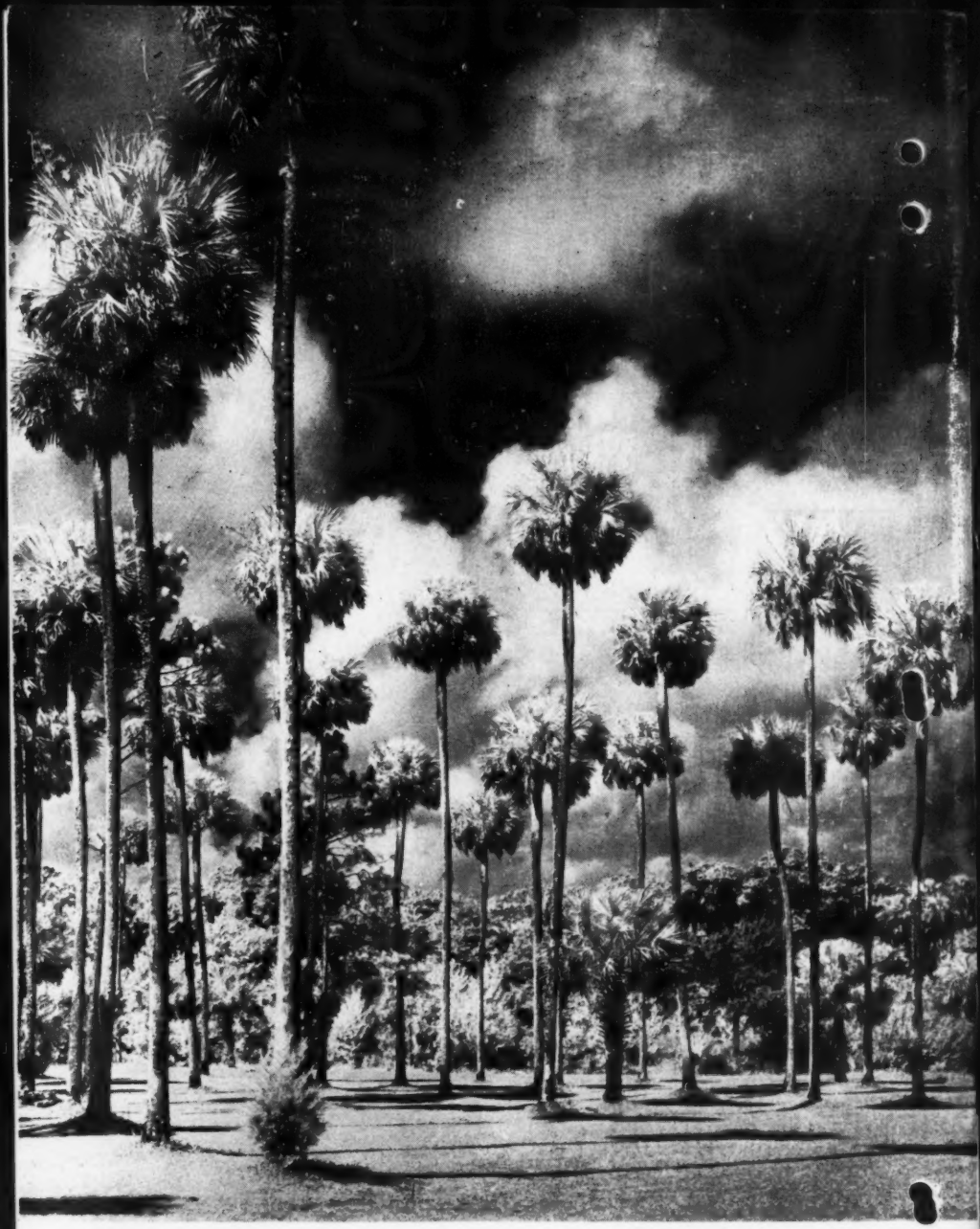


Photo by Jerome Burgman

A stand of the common cabbage palm, *Sabal Palmetto*, growing natively in a former cow pasture now part of the grounds of a country club at Daytona Beach, Florida. Eloquent evidence that the Palmettoes are not everywhere squat and unkempt trees, but just the reverse: noble trees attaining to great age and to heights of eighty and, rarely, ninety feet.